



A UK student survey investigating the effects of consuming alcohol mixed with energy drinks on overall alcohol consumption and alcohol-related negative consequences

Sean J. Johnson^{a,*}, Chris Alford^a, Karina Stewart^b, Joris C. Verster^{c,d}

^a The Centre for Research in Biosciences, Department of Health and Social Sciences, University of the West of England, Bristol BS16 1QY, UK

^b Department of Biological, Biomedical and Analytical Sciences, University of the West of England, Bristol BS16 1QY, UK

^c Utrecht Institute for Pharmaceutical Sciences, Division of Pharmacology, Utrecht University, Utrecht, The Netherlands

^d Centre for Human Psychopharmacology, Swinburne University, Melbourne, Australia

ARTICLE INFO

Article history:

Received 23 May 2016

Received in revised form 31 August 2016

Accepted 6 September 2016

Available online 07 September 2016

Keywords:

Alcohol mixed with energy drinks

Student alcohol consumption

Consequences

ABSTRACT

Previous research reported positive associations between alcohol mixed with energy drink (AMED) consumption and overall alcohol consumption. However, results were largely based on between-subjects comparisons comparing AMED consumers with alcohol-only (AO) consumers, and therefore cannot sufficiently control for differences in personal characteristics between these groups. In order to determine whether AMED consumers drink more alcohol on occasions they consume AMED compared to those when they drink AO additional within-subjects comparisons are required.

Therefore, this UK student survey assessed both alcohol consumption and alcohol-related negative consequences when consumed alone and when mixed with energy drinks, using a within-subject design.

A total of 1873 students completed the survey, including 732 who consumed AMED. It was found that AMED consumers drank significantly less alcohol when they consumed AMED compared to when they drank AO ($p < 0.001$). In line with reduced alcohol consumption significantly fewer negative alcohol-related consequences were reported on AMED occasions compared to AO occasions ($p < 0.001$).

These findings suggest that mixing alcohol with energy drinks does not increase total alcohol consumption or alcohol-related negative consequences.

© 2016 The Authors. Published by Elsevier Inc. This is an open access article under the CC BY-NC-ND license (<http://creativecommons.org/licenses/by-nc-nd/4.0/>).

1. Introduction

Excessive alcohol consumption is a persistent global issue, ranked the third leading cause of death and disability worldwide (SS et al., 2012). In England in 2013/14 there were 6592 alcohol-related deaths, a 10% increase from 2003, and over 1 million hospital admissions related to alcohol consumption (Health and Social Care Information Centre, 2015). These alarming statistics are underlined by the findings that 24% of people in the UK consume alcohol in a way that is harmful or potentially harmful to their health and well-being (National Health Service, n.d.-a).

In the past decade there has been increased concern regarding heavy episodic or binge drinking. In the UK binge drinking is defined as consuming >8 units of alcohol for men, and more than six units of alcohol for women (National Health Service, n.d.-b). Recent research by the World Health Organization (2014) found that Britain is one of the worst countries in the world for binge drinking, ranked 13th out of

196 countries, with 28% of Britons classed as having had an episode of heavy drinking in the previous month—twice the global average. Binge drinking is particularly prevalent among young people, with 27% of 16–24 year olds found to have drunk very heavily at least once in the past week (Office for National Statistics, n.d.). These findings indicate a serious public health problem and social issue that requires attention. Therefore, it is important to study the factors that may be contributing to high rates of alcohol consumption among young people in the UK.

Recently there has been much public health interest and British media attention on the rise in popularity of mixing alcohol with energy drinks and its possible effect on overall alcohol consumption and negative alcohol-related consequences. Indeed, despite energy drinks comprising only 1% of the total non-alcoholic beverage market (UNESDA, 2012), 15–24% of students aged 18–30 years old report consuming alcohol mixed with energy drinks (AMED) at least once in the past month (O'Brien et al., 2008; Velazquez et al., 2012). Research attention has primarily focused on whether consuming AMED poses a public health concern above and beyond consuming alcohol by itself, and therefore a behaviour worth targeting to reduce excessive alcohol consumption.

Several studies have compared alcohol consumption among those who mix alcohol with energy drinks and those who consume alcohol

Abbreviations: AMED, Alcohol Mixed with Energy Drink; AO, Alcohol-Only; BYAACQ, Brief Young Adult Alcohol Consequences Questionnaire.

* Corresponding author.

E-mail address: Sean2.Johnson@live.uwe.ac.uk (S.J. Johnson).

only, using a between-subjects design. The majority of these studies (Brache and Stockwell, 2011; Eckschmidt et al., 2013; Flotta et al., 2014; O'Brien et al., 2013) have consistently found that those who consume AMED drink significantly more alcohol on an average drinking occasion compared to those who consume alcohol only (AO). In line with increased alcohol consumption those who consumed AMED also reported significantly more alcohol-related consequences than those who consumed AO, including driving whilst intoxicated (Brache and Stockwell, 2011; Eckschmidt et al., 2013; Flotta et al., 2014; O'Brien et al., 2013) and having unplanned unprotected sex (O'Brien et al., 2008, 2013). Early explanations for these findings purported that AMED consumption leads to a reduced perception of alcohol intoxication (Marczinski, 2011), increasing the amount of alcohol consumed and susceptibility to negative alcohol-related consequences (O'Brien et al., 2008; Arria et al., 2010, 2011; Miller, 2008; Thombs et al., 2010; Berger et al., 2010). The foundations of these claims were based on the hypothesis that the stimulant effects of caffeine counteract the sedative effects of alcohol, resulting in AMED consumers feeling less impaired and less intoxicated than they actually are, and therefore more likely to consume further quantities of alcohol and more likely to take risks. However, as evidenced in a recent meta-analysis (Benson et al., 2014) experimental research has consistently failed to support the notion that mixing alcohol with caffeinated beverages reduces the perceived level of intoxication. Other between-subjects research has also disputed the relationship between AMED consumption and increased alcohol consumption. A survey by Penning et al. found no significant difference in alcohol consumption or next day hangover severity between those that consumed AMED and those that consumed AO Penning et al., 2011. Similarly, Rossheim and Thombs (2011) reported no significant relationship between AMED consumption and the chances of being intoxicated, and intoxication levels for AMED consumers were comparable to those consuming non-caffeinated mixed drinks.

Moreover, some researchers (Skeen and Glenn, 2011; Verster et al., 2012) have questioned the methodological shortcomings of using between-subjects designs to reach causal conclusions on the effects of mixing alcohol with energy drinks on overall alcohol consumption. The main reason for criticism is that this approach does not reveal relevant information about the possible role that energy drinks play in affecting overall alcohol consumption or its related consequences. Even when, as the research outlined shows, AMED individuals consume more alcohol than those who consume AO, this does not imply that mixing alcohol with energy drinks caused increased alcohol consumption. The presented correlations in the surveys between energy drink and alcohol consumption do not imply that one causes the other. In fact, between-subjects comparisons introduce the influence of potential confounders that are not controlled for and may explain the observed differences in the frequency and quantity of alcohol consumption. Therefore, between-subjects comparison surveys are unsuitable and may lead to inappropriate conclusions regarding the need for policy changes to reduce the consumption of AMED.

In order to verify whether mixing alcohol with energy drinks increases overall alcohol consumption and negative alcohol-related consequences some researchers have adopted a within-subjects design. This approach compares the drinking behaviour on AMED occasions with other occasions on which the same people consume AO, therefore controlling for potential between-subject variables. Thus, when using a within-subjects design the only difference between the drinking occasions is the co-consumption of energy drinks allowing causal inferences to be made. Whilst some studies have found small but statistically significant increases in alcohol consumption and negative alcohol-related consequences on AMED occasions compared to AO occasions (Brache and Stockwell, 2011; Peacock et al., 2012; Price et al., 2010), the majority of research has found no difference (Verster et al., 2015) or statistically significant decreases in alcohol consumption and negative alcohol-related consequences (Woolsey et al., 2010; De Haan et al., 2012a; Lubman et al., 2013). For example, in the first large scale survey

(Total $N = 6002$, AMED consumers $N = 1239$) applying a within-subjects design, De Haan et al. (2012a, 2012b) found that compared with consuming AO, when consuming AMED, students drank significantly fewer alcoholic drinks, reported significantly fewer drinking days and days being drunk, and significantly fewer occasions of consuming more than five alcoholic drinks. In addition, when consuming AMED, significantly fewer negative alcohol-related consequences were reported. In a recent meta-analysis of all within-subject comparisons AMED research Verster et al. (2016) found no significant difference in overall alcohol consumption between AMED and AO occasions. This finding is reflected in recent authoritative evaluation (UK COT, 2012; EFSA NDA Panel (EFSA Panel on Dietetic Products, Nutrition and Allergies), 2015) concluding that the mixing of energy drinks with alcohol does not pose any additional risks compared with drinking alcohol on its own.

In summary, research to date suggests that AMED consumers drink significantly more alcohol than AO consumers. However, there does not appear to be any difference in the amount of alcohol consumed by AMED consumers on AMED occasions compared to AO occasions. Some researchers have explained this observed pattern of alcohol consumption as being caused by underlying personality differences between the two groups, such as levels of risk-taking behaviours (Verster et al., 2012). Indeed, much of the previous between-subjects research has found that AMED consumers had higher scores on sensation-seeking, childhood conduct problems, masculine norms and drug use compared to alcohol only consumers (Arria et al., 2010, 2011; Miller, 2008; Berger et al., 2010; Snipes and Benotsch, 2013). Thus a personality with higher levels of risk taking behaviour may be the primary reason for increased alcohol and drug abuse, with the co-consumption of energy drinks being just one of the many expressions of such a lifestyle.

Despite the concerns raised regarding the effects of mixing energy drinks with alcohol there is currently a lack of available data from the UK. Indeed, despite the UK having one of the highest rates of binge drinking in the World (World Health Organization, 2014), in a review of the available research no studies were identified from the UK (Verster et al., 2012). In order to throw light on current energy drink and alcohol use in the UK, a partial replication of the Utrecht survey by De Haan et al. (2012a, 2012b) was conducted, but with students at Universities throughout the UK. The primary aim of this survey was to examine alcohol consumption and its consequences when consumed alone or when mixed with energy drinks using the appropriate within-subjects design. Differences in demographics, alcohol, smoking and drug use between alcohol only and AMED consumers were also explored using between-subjects analysis.

2. Materials and methods

2.1. Sample

All student unions at Universities throughout the UK ($N = 139$) were contacted via email to ask if they would be willing to act as a gate-keeper and distribute the link to the AMED student survey via their social media platforms (Facebook and Twitter). This link was posted at three stages during the five week data collection period; on the opening day, half way through the data collection period and one week before the survey was due to close. In total 30% of student unions, including institutions from each country (England, Wales, Scotland, Northern Ireland) responded and agreed to take part. Given the nature of using social media as a recruitment method it was not possible to determine the response rate.

The study protocol was reviewed and approved by the University of the West of England Ethics committee. Participation was anonymous and voluntary. In order to reduce the likelihood of non-response bias, those who wished to take part were entered into a monetary prize draw of $1 \times \pounds 500$ and $10 \times \pounds 50$.

Download English Version:

<https://daneshyari.com/en/article/4202303>

Download Persian Version:

<https://daneshyari.com/article/4202303>

[Daneshyari.com](https://daneshyari.com)